Cisco Adaptive Security Virtual Appliance (ASAv)

Meet the latest step in the evolution of Cisco[®] Adaptive Security Appliances: the Cisco Adaptive Security Virtual Appliance (ASAv). This appliance brings the power of ASA to the virtual domain and cloud environments. It runs the same software as the physical appliance to deliver proven security functionality. You can use it to protect virtual workloads within your data center. Later, you can expand, contract, or shift the location of these workloads over time and span physical, virtual, and Public Cloud infrastructures.

In the past, computing infrastructure elements were implemented with specialized hardware built for that purpose. With the advent of x86 server virtualization and the need for more power, the virtualization of computing infrastructure is becoming more popular. Businesses are deploying their computing, storage, and network infrastructure with virtual devices because of benefits they gain. These include deployment flexibility, increased server utilization, and ease of management.

Product Overview

The Adaptive Security Virtual Appliance runs as a virtual machine inside a hypervisor in a virtual host (Figure 1). Most of the features that are supported on a physical ASA by Cisco software are supported on the virtual appliance as well, except for clustering and multiple contexts. The virtual appliance supports site-to-site VPN, remote-access VPN, and clientless VPN functionalities as supported by physical ASA devices.

Figure 1. ASAv Architecture
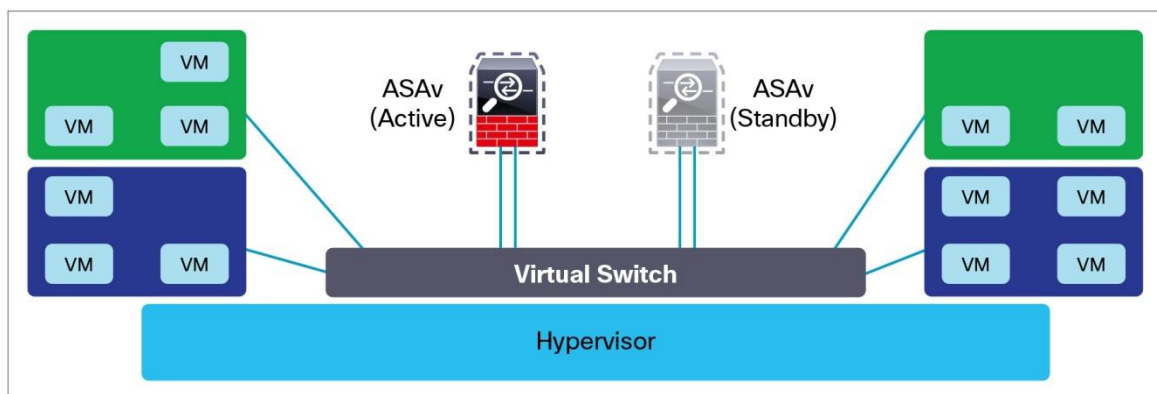
The Adaptive Security Virtual Appliance uses Cisco Smart Software Licensing to validate its entitlements. Smart Software Licensing makes it easier to deploy, manage, and track virtual instances of the appliance running on customer premises.

Benefits

The Adaptive Security Virtual Appliance offers multiple customer benefits, including the following:

Uniform Security across Deployment Domains

You gain uniform security across physical and virtual deployment domains with multiple hypervisors. Increasingly, customers are deploying some parts of an application on physical infrastructure and other parts on virtual infrastructure. Even on a virtual infrastructure, customers use multiple hypervisors to deploy their applications. ASAv, along with ASA, normalizes the deployment options. One security policy can be deployed for both physical and virtual appliances.

Ease of Management

The Adaptive Security Virtual Appliance offers the Representational State Transfer (REST) API, an HTTP-based interface. With it, you can change your security policies and monitoring status and otherwise manage the device. An ASA can be introduced into Software-Defined Networking (SDN) environments and easily used with custom policy-orchestration systems.

Ease of Provisioning

You can provision the virtual appliance within a matter of minutes with a predetermined configuration. You can quickly deploy security services to match the speed of application deployment. With Smart Software Licensing, the virtual appliance can automatically obtain the entitlements while giving you a single, holistic view of the resources being consumed within your enterprise.

The Virtual Appliance Family

The virtual appliance is available in multiple models to provide a suitable fit for customer needs:

- Cisco ASAv5: consumes 1 GB up to 1.5 GB of memory and delivers up to 100 Mbps of throughput
- Cisco ASAv10: consumes 2 GB of memory and delivers up to 1 Gbps of throughput
- Cisco ASAv30: consumes 8 GB of memory and delivers up to 2 Gbps of throughput
- Cisco ASAv50: consumes 16 GB of memory and delivers up to 10 Gbps of throughput

Smart Software Licensing

Cisco Smart Software Licensing makes it easier to buy, deploy, track, and renew Cisco licenses. We have moved away from Product Activation Key (PAK)-based licensing to a model that supports more flexibility and visibility. You will enjoy:

- Simpler purchase and activation of the virtual appliance, as outlined in Figure 2
- Easier license management and reporting of virtual appliances due to license pooling
- Automatic license activation when the virtual appliance is provisioned

Customers, their chosen partners, and Cisco can view product entitlements and services in the Cisco Smart Software Manager. Configuration and activation are done with a single token. The Adaptive Security Virtual Appliance will self-register with a Cisco server in the cloud, removing the need of going to a website and registering products with PAKs. Instead of using PAKs or license files, Smart Software Licensing establishes a pool of software licenses or entitlements that can be used across your business. When a virtual appliance is instantiated on a customer's premises, an entitlement is subtracted from the pool. When a virtual appliance is decommissioned, or when it is deinstantiated within the Smart Software Manager, an entitlement is added to the pool.

With the Smart Software Manager, you can self-manage license deployments throughout your company easily and quickly. You can also manage multiple products from Cisco that support Smart Software Licensing.

The Adaptive Security Virtual Appliance uses Smart Software Licensing exclusively. Older forms of licensing are not supported.
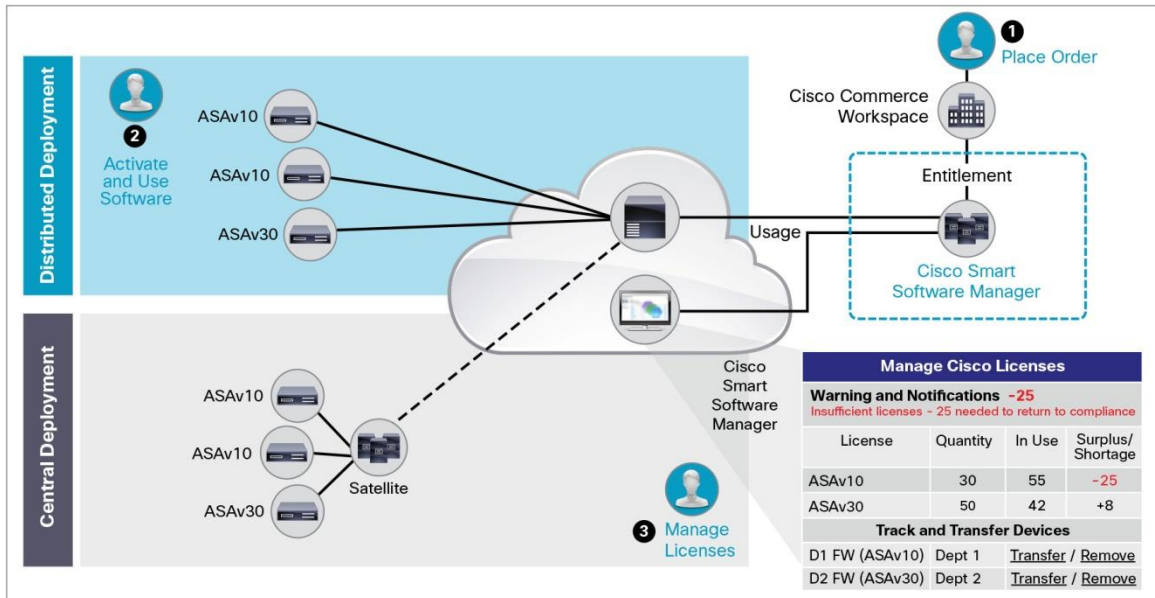
Figure 2.   Smart Software Licensing

Table 1 lists the specifications for all three virtual appliance models. Table 2 provides ordering information.

Table 1.   Specifications

Feature	ASAv5	ASAv10	ASAv30	ASAv50
Stateful inspection throughput (maximum)[1]	100 Mbps	1 Gbps	2 Gbps	10 Gbps
Stateful inspection throughput (multiprotocol)[2]	50 Mbps	500 Mbps	1 Gbps	5 Gbps
Advanced Encryption Standard (AES) VPN throughput[3]	30 Mbps	125 Mbps	1 Gbps	3 Gbps
Connections per second	8,000	20,000	60,000	120,000
Concurrent sessions	50,000	100,000	500,000	2,000,000
VLANs	25	50	200	1024
Bridge groups	12	25	100	250
IPsec VPN peers	50	250	750	10,000
Cisco AnyConnect® or clientless VPN user sessions	50	250	750	10,000
Cisco Unified Communications phone proxy	50	250	1000	Not tested
Cisco Cloud Web Security users	250	1,000	5000	Not tested

Feature	ASAv5	ASAv10	ASAv30	ASAv50
High availability	Active/standby			
Hypervisor support	VMware ESX/ESXi 6.0, 6.5; vMotion KVM Hyper-V: Windows Server 2012 R2 (Not supported for ASAv50)			
Public Cloud Support	AWS (c3.large, c3.xlarge, c4.large, c4.xlarge, M4) Azure (d3, d3_v2) (including Azure Government Cloud)			Currently not supported on Public Cloud
Modes	Routed and transparent			
Virtual CPUs	1	1	4	8
Memory	1 GB minimum 1.5 GB maximum	2 GB	8 GB	16 GB
Minimum disk storage[4]	8 GB	8 GB	16 GB	16 GB

Note: This data is from testing on the Cisco Unified Computing System™ (Cisco UCS®) C series M4 server with the Intel® Xeon® CPU E5-2690v4 processors running SR-IOV on Intel X520/X540. Each performance number above was obtained while running only the associated test.

[1] Maximum throughput measured with User Datagram Protocol (UDP) traffic under ideal conditions.

[2] "Multiprotocol" refers to a traffic profile consisting primarily of TCP-based protocols or applications like HTTP, SMTP, FTP, IMAPv4, BitTorrent, and DNS.

[3] The VPN throughput and the number of sessions depend on the ASA device configuration and VPN traffic patterns. Datasheet numbers based on IKEv2 Throughput 450B UDP NGE tested numbers. These elements should be taken into consideration as part of your capacity planning.

[4] Thin provisioning is supported.

Table 2. Ordering Information: In Cisco Commerce Workspace (CCW) Order the Base Selection (Denoted by "K9" in the Part Number), Followed by the Desired License Type

Part Number	Description
L-ASAV5S-K9=	8-pack Cisco ASAv5 (100 Mbps) selection
L-ASAV5S-STD-8	8-pack Cisco ASAv5 (100 Mbps) with all firewall features licensed
L-ASAV10S-K9=	Cisco ASAv10 (1 Gbps) selection
L-ASAV10S-STD	Cisco ASAv10 (1 Gbps) with all firewall features licensed
L-ASAV10S-STD-16	16-pack Cisco ASAv10 (1 Gbps) with all firewall features licensed
L-ASAV30S-K9=	Cisco ASAv30 (2 Gbps) selection
L-ASAV30S-STD	Cisco ASAv30 (2 Gbps) with all firewall features licensed
L-ASAV30S-STD-4	4-pack Cisco ASAv30 (2 Gbps) with all firewall features licensed
L-ASAV50S-K9=	Cisco ASAv50 (10 Gbps) selection
L-ASAV50S-STD	Cisco ASAv50 (10 Gbps) with all firewall features licensed
L-ASAV50S-STD-4	4-pack Cisco ASAv50 (10 Gbps) with all firewall features licensed

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